

REMARKS

Claims 2, 5, 6 and 9-19 remain pending in the present application. Claims 5, 6, 9 and 11 have been amended. Claims 14-19 are new. Basis for the amendments and new claims can be found throughout the specification, claims and drawings originally filed.

JP 59-77918

The Examiner raised several issues in relation to this reference cited by the Applicants. Claims 9 and 11 clearly distinguish over this reference due to the vertical displacement of the heat exchanger and evaporator versus the approximately horizontal positioning of the present invention.

Applicants' attorney is not aware of nor have Applicants informed Applicants' attorney of any litigation and/or interference proceeding and/or any opposition to any foreign counterpart of the present application. Applicants' attorney is well aware of the prior art disclosure rules for the USPTO and has informed the Applicants regarding these rules. Thus, there are no documents that need be supplied to or translated for the Examiner.

REJECTION UNDER 35 U.S.C. § 112

Claims 2, 5, 6 and 9-13 are rejected under 35 U.S.C. § 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. The claims have been amended to overcome the rejection. Reconsideration of the rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 2, 5, 6 and 9-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP vertical axis and air inside/outside changeover assembly above the blower fan 6-156049 in view of (newly cited, untranslated) JP 59-77918 and DT '451 (Figures 5 and 6) or Nagao, et al. Claims 2, 5, 6 and 9-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the prior art as applied to Claims 2, 5, 6 and 9-11 above, and further in view of Netherlands 166433. Claims 2, 5, 6 and 9-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over any of the prior art as applied to Claims 2, 5, 6 and 9-11 above, and further in view of Brandecker or Gebhardt or Mullin or Bates or Marsteller. This rejection is confusing due to the sentence structure of the rejection. Applicants are responding to this rejection as if it was meant to be "unpatentable over JP 6-156049 in view of JP 59-77918 and DE '451 or Nagao, et al."

The initial rejection (bottom of page 3) cited JP 6-156049; JP 59-77918; DE '451; and Nagao, et al. The Examiner then states that JP '049 shows all of the claimed features with the exception of an off set blower having a vertical axis. In the second rejection (middle of page 5) the Examiner adds Netherlands 166433 to provide additional support for limitations of the independent claims and in the third rejection (bottom of page 5) the Examiner has added Brandecker, Gebhardt, Mullin, Bates and Marsteller to again provide additional support for limitations of the independent claims of the invention. Applicants have combined these three rejections as it appears the second and third rejection's prior art is needed to meet the limitations of pending Claims 9 and 11.

Amended Claims 9 and 11 of the present invention define the following structural features A-G in the arrangement of a vehicle air conditioner where the air conditioning unit is disposed generally at the center of the instrument panel in the vehicle width direction and the blower unit is disposed in the passenger compartment at a position offset from the center of the instrument panel in the vehicle width direction. That is,

A. the cooling heat exchanger and the heating heat exchanger are stacked in the up-down direction while being disposed approximately horizontally;

B. the cooling heat exchanger is arranged adjacent to the partition plate, as shown in Figs. 6 and 11 of the present application;

C. the refrigerant pipe member, through which refrigerant is introduced into a heat exchanging portion of the cooling heat exchanger, protrudes toward the engine compartment from a side surface of the cooling heat exchanger, adjacent to the partition plate;

D. the refrigerant pipe member penetrates through the partition plate and protrudes into the engine compartment when being mounted on the vehicle;

E. the case has an air inlet from which the air blown by the blower unit is introduced into the space under the cooling heat exchanger approximately horizontally;

F. the air introduced into the space under the cooling heat exchanger passes through the cooling heat exchanger upwardly from below; and

G. the drain opening in direct communication with the space under the cooling heat exchanger is provided at the bottom of the case directly under a lower side surface of the cooling heat exchanger on a downstream side of the lower side surface.

In the present invention, the above-described structures A-G are combined so that the following advantages A1-A3 can be obtained.

Advantage A1: Small vertical dimension of the air conditioner

In the air conditioner of the present invention, the blower is offset from the air conditioning unit in the vehicle width direction, the air blown from the blower unit is approximately horizontally introduced into the space under the cooling heat exchanger that is arranged at the center within the instrument panel in the width direction, and the air passes through the cooling heat exchanger upwardly from below.

Accordingly, the vertical dimension of the air conditioner can be greatly reduced as compared with the structure of Fig. 19 of this application and the structure of JP 6-156049 where the blower unit is disposed at a lower side of the cooling heat exchanger.

Advantage A2: Small vehicle front-rear dimension of the vehicle air conditioner

In the present invention, the cooling heat exchanger is arranged adjacent to the partition plate, and air blown from the blower is introduced into the lower space of the cooling heat exchanger. Therefore, it is unnecessary to form any air passage between the cooling heat exchanger and the partition plate in the vehicle front-rear direction.

Accordingly, it is compared with a structure where an air duct for introducing air from the blower unit to the cooling heat exchanger is provided at a vehicle front side of the cooling heat exchanger, the vehicle front-rear dimension of the air conditioner can be greatly reduced. For example, in the structure of Fig. 19 of this application or in JP 59-77918, this air duct is provided at the vehicle front side of the cooling heat exchanger.

Advantage A3: Improving connection performance of the reference pipe member

In amended Claims 9 and 11 of the present invention, the cooling heat exchanger is arranged adjacent to the partition plate without providing any air conditioning component such as an air duct between the cooling heat exchanger and the partition plate. Therefore, it is possible for the refrigerant pipe member to directly penetrate through the partition plate from the side surface of the cooling heat exchanger, adjacent to the partition plate, and to protrude into the engine compartment.

In JP 6-156049, when the air duct for forming the air passage is provided between the cooling heat exchanger and the partition plate, the refrigerant pipe from the side surface of the cooling heat exchanger is difficult to directly protrude to the partition plate and to penetrate through the partition plate.

In JP 6-156049, the blower unit is not offset from the air conditioning unit in the vehicle width direction, but is disposed under the cooling heat exchanger. Further, the cooling heat exchanger is not arranged adjacent to the partition plate, but an air duct (outside air passage) is interposed between the cooling heat exchanger and the partition plate. The Examiner's position that using an offset blower in JP 6-156049 is made without any suggestion in JP 6-156049 that this substitution be made. Certainly if the blower in JP 6-156049 is moved to an offset position it will reduce its height but it will also increase its width or length depending on which direction it is offset. The Examiner's position that it would make it adaptable for mounting in compact vehicles due to reduced vertical space does not take into consideration that the width and length of a compact car is also reduced thus moving the blower to one side may present

problems with steering or consoles and moving it to the front may present problems with leg room. Thus, there is no suggestion in JP 6-156049 which supports moving the blower to provide a shorter air conditioning unit.

In JP 59-77918, the air conditioning unit is disposed at the vehicle center, and the blower unit is offset in the vehicle width direction. However, in JP 59-77918, the cooling heat exchanger (12) and the heating heat exchanger (11) are not arranged horizontally, they are arranged vertically, respectively, so that air passes through the cooling heat exchanger and heating heat exchanger horizontally. In addition, the cooling heat exchanger is not arranged adjacent to the partition plate, but an air duct portion for introducing air from the blower unit to the cooling heat exchanger is provided at a vehicle front side of the cooling heat exchanger. Regarding the translation of Roman Numerals (i) – (vii), Applicants believe the figures of this reference clearly indicate its relevance and its lack of relevance to the pending claims of the present application.

DE 3501451 does not teach any of the arrangement relationships between the partition plate and the cooling heat exchanger.

Nagao, et al. (U.S. Pat. No. 4,696,340) does not disclose the partition plate and does not teach the arrangement relationships between the partition plate and the cooling heat exchanger. Further, there is nothing described regarding the offset arrangement of the blower unit in the vehicle width direction.

Netherlands 166433 does not disclose the partition plate and does not teach the arrangement relationships between the partition plate and the cooling heat exchanger.

Further, there is nothing described regarding the offset arrangement of the blower unit in the vehicle width direction

Further, the other documents (Brandecker, Gebhardt, Mullin, Bates, Marsteller) cited by the Examiner also do not disclose the partition plate and do not teach the arrangement relationship between the partition plate and the cooling heat exchanger.

Due to the numerous pieces of prior art (from five to ten) that the Examiner has combined, without motivation, to reject the claims of the present invention, it is clear that the Examiner is utilizing hindsight reconstruction by picking and choosing isolated elements from various pieces of prior art and then combining these isolated elements in order to arrive at the claimed invention. The courts have continuously ruled that this hindsight reconstruction is impermissible.

Thus, Applicants believe Claims 9 and 11, as amended, patentably distinguish over the art of record. Likewise, Claims 2, 5, 6 and 10-13 which ultimately depend from Claims 9 or 11 are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

NEW CLAIMS

New Claims 14-19 are dependent claims that add additional limitations to Claims 9 or 11 and are thus believed to be allowable.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request

that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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